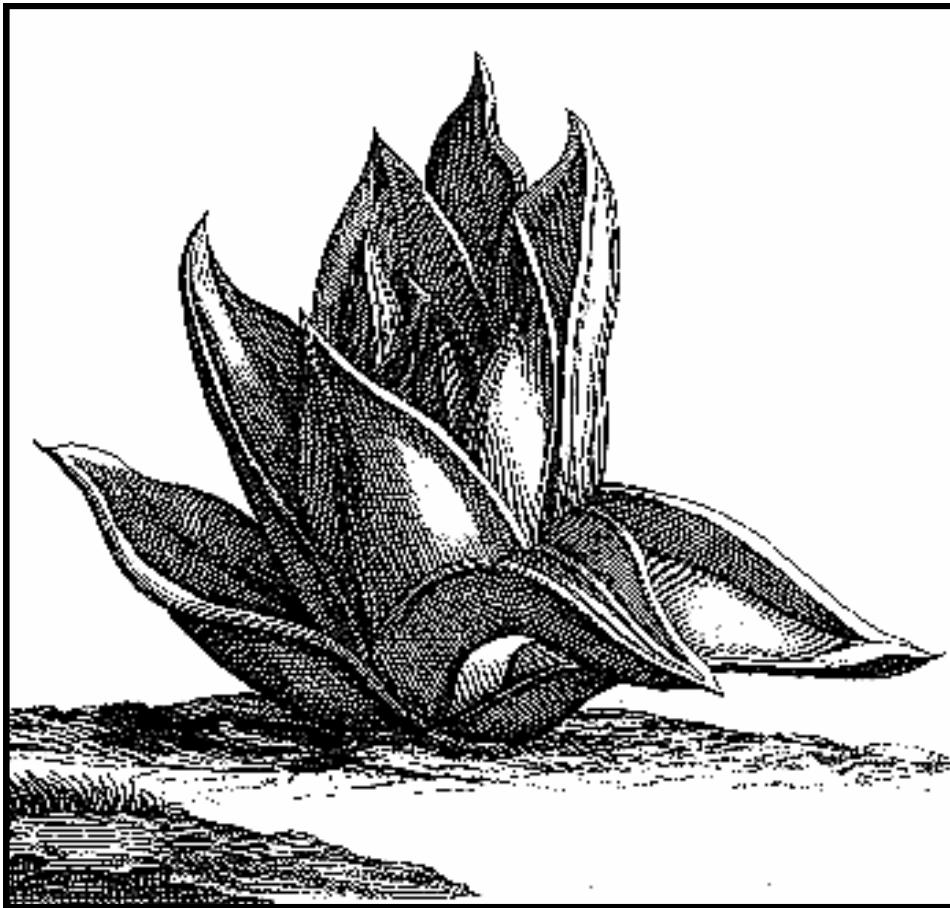


# ALSTERWORTHIA INTERNATIONAL

The  
SUCCULENT ASPHODELACEAE  
journal



*Aloe Africana humilis* folio in summitate triangulari et rigidissimo, marginibus  
albicantibus.

Prael. Bot. t.30

Commelin 1703

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# ALSTERWORTHIA INTERNATIONAL

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For Volume 1 we forecast that there would be three issues, each of which should normally have 16 A4 pages, of which two should normally be devoted to colour illustrations. In the event, all issues had 16 pages, two of which were devoted to colour photographs and an A4 4-page supplement with a comprehensive index for volume one was also published with the November issue. All issues were published on time.

Volume 2 will arise from the foundation provided by Volume 1 and we hope you will detect continuing

improvements. Money is the key to improvements. Please encourage your friends to subscribe.

Suggestions for improving the contents of Alsterworthia International are always welcome, particularly if they take the form of articles with colour illustrations! Photographs are welcome, but please ensure they are in focus and that the picture occupies the full frame, so that irrelevant material is excluded.

## Alsterworthia International Web Pages

Full information about Alsterworthia International can now be accessed at:

<http://www.cactus-mall.com/alsterworthia/index.html>

The opening pages accessed via the above address give information about the policy for, and scope of, the journal Alsterworthia International. Clicking on any of three buttons at the end gives access to additional information.

**Journal Contents.** Gives information about, and examples of, indexes plus how to obtain further indexes free of charge by e-mail. These pages may be accessed direct via

<http://www.cactus-mall.com/alsterworthia/journal.html>

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We are extremely grateful to Tony Mace of the Cactus and Succulent Plant Mall < <http://www.cactus-mall.com> > for making this facility available.

## *Aloe Africana humilis folio in summitate triangulari et rigidissimo, marginibus albicantibus.*

The front cover illustration was published in 1703 by Commelin as t.30 in *Praeludia Botanica* with a pre-Linnaean descriptive name. (Low growing African aloe, leaf apex triangular and rigid, margins white.)

In 1783 Lamarck described *Aloe marginata*, which Stearn transferred to *Haworthia* in 1938. Scott designated t. 30 as the lectotype (illustration designated as the nomenclatural type

where no type was designated at the time of description) for *A. marginata*. Thus *Aloe marginata* is the basionym (name bearing epithet) for *Haworthia marginata* and t.30 is the lectotype.

For further information please see "Haworthia marginata (Lam.) Stearn – A prominent but threatened species." by Essie Esterhuizen pages 11-12.

## C O N T E N T S

Alsterworthia International Web Pages.....	2	In vitro propagation of <i>Aloe haemanthifolia</i> .....	9
<i>Aloe Africana humilis folio in summitate triangulari et rigidissimo, marginibus albicantibus.</i> .....	2	Vegetative and in vitro propagation of aloes. Robert Wellens.....	10
<i>Aloe 'Midas'</i> cultivar nova. Jean-André Audissou .....	3	International Succulent Introductions for 2002.....	10
The heat is on.....	3	<i>Haworthia marginata</i> (Lam.) Stearn – A prominent but threatened species. J.M. Esterhuizen.....	11-12
Selected cultivars created by John André Audissou.....	4-5	A comment on Bayer's latest taxonomic contribution. by Ingo Breuer .....	13
Comments on <i>Haworthia correctea</i> . Ingo Breuer.....	5	International Succulent Introductions 2002 - Aloes.....	14
A find of two aloes. Daphne and Albert Pritchard .....	6-7	Book Review. Illustrated Handbook of Succulent Plants: Monocotyledons. Dr. Paul Forster .....	15
Friends of Kew - a U.S.A. contribution.....	7		
The pleasure of propagation by leaf-cutting. Harry C.K. Mak.....	8-9		
Avonia 19:2, 2001. Aloe and Haworthia issue. Harry Mays .....	9		

# *Aloe 'Midas'* cultivar nova J.-A. Audissou

Jean-André Audissou

36, avenue du stade, 17450 Fouras, France

**Hybridist:** J-A. Audissou

**Parentage:** (*Aloe rauhii* x *Aloe bellatula*) x *Aloe sladeniana*

**Illustrations:** Figs. 1 & 2.

**Plant:** Stemless, rarely offsetting.

**Leaves:** About 20 in dense rosette, sword-shaped, up to 14 cm long, 4 cm wide at the base, slightly canaliculate, on both sides many small, dense, mat-white flecks, edges narrowly cartilaginous light green, with soft pointed cilium-like teeth (non-pricking) to 0.5 mm long, few in number.

**Inflorescence:** Not branching, plano-convex to 650 mm long, 4 mm diameter; sterile bracts 16 mm x 6 mm at the base, whitish with 3-5 brown nerves.

**Flowers:** Bracts 4 mm x 2 mm; pedicels 17 mm, pink; perianth 29 mm (diameter in the



Fig. 2. *Aloe 'Midas'*

Photographs by the author

Fig. 1. *Aloe 'Midas'* - flower.



region of the ovary 6 mm, 11 mm at the mouth); cylindrical-trigonal, base rounded, perianth segments about  $\frac{3}{4}$  rosy red to about a  $\frac{1}{4}$  pale rose with paler tips, cream to pale rose, and brownish mid stripes; filaments 21-25 mm, not exerted; anthers 2.2 mm, orange-brown, pollen yellow; ovary 2.3 mm diameter, 7 mm long, green; style 20 mm long, cream; bracts 4 mm long, 2 mm wide at base, whitish with a brown nerve.

## THE HEAT IS ON \*

"THE HEAT IS ON" is South Africa's first report, released towards the end of 2001, on the impact that climate change might have on plant diversity. This report explains how climate change threatens to make certain areas in South Africa uninhabitable for the plants that grow there.

Savannah might be the result of a climate warm up that will enable woody plants to invade grasslands.

Fires around the northern arm of the Fynbos biome might become more frequent, disrupting many of the close and essential relationships between indigenous plants and animals. The Fynbos biome may disappear altogether. Endemic species might become extinct.

Only the hardiest plants will be able to survive the heat increase that promises to have a devastating effect on the succulent Karoo. The change threatens to make the Karoo drier

and more desert-like.

Temperatures are predicted to increase especially over January in the central parts of the country. The least increases in temperature will be experienced along the coast.

\* Extract from the GISA (Green Industry of South Africa) newsletter for December 2001. Web site: [www.gisa.co.za](http://www.gisa.co.za)

Editor's note: Readers will recognise that genera of the Asphodelaceae grow in these areas. The fact that some haworthias, aloes, gasterias, bulbines etc grow in coastal areas is very small consolation.



## Selected cultivars created by John André Audissou

Photographs by the author

### *Haworthia* 'Crocodile Skin'

The parents are *Haworthia koelmaniorum* Oberm. & Hardy x *Haworthia limifolia* v. *ubomboensis* (I. Verd.) G.G. Smith. The open rosette and long leaves of 'Crocodile Skin' are similar to those of *H. v. ubomboensis*. There is little evidence of the shorter, more compact leaves of *H. koelmaniorum*. Verdoorn's description of *H. ubomboensis* provides for the leaves to be ". smooth or with a few localised tubercles running longitudinally.". In 'Crocodile Skin' there are longitudinal rows of many, prominent tubercles clearly inherited from *H. koelmaniorum*. The leaves are a mid-green with whitish tubercles but in stronger light the leaves develop a pinkish tinge deepening in intensity at the base and they appear lighter green.



Fig. 3. *Haworthia* 'Crocodile skin'  
Grown in stronger light, this plant is showing more colour.



Fig. 4. *xGasterhaworthia* 'Black Snake'

### *xGasterhaworthia* 'Black Snake'

The parents are *Haworthia koelmaniorum* Oberm. & Hardy x *Gasteria baylissiana* Rauh. The shape of the leaves is similar to that of *G. baylissiana*, but the leaves are not distichous as in *G. baylissiana*. They are in the form of a rosette as in *H. koelmaniorum*. The leaves are darker green. The distribution of the whitish tubercles is reminiscent of those in *G. baylissiana*. In strong light the leaves take on a darker, blackish coloration. Fig 4 shows a young plant developing the rosette leaf formation with the darker coloration of the leaves.

### *xGasterhaworthia* 'Sabrina'

The parents are *Haworthia longiana* Poelln. x *Gasteria glomerata* E.J. v. Jaarsveld. Its leaves are long as in *H. longiana*. The short, tightly-packed, distichous leaves of *G. glomerata* appear to contribute only to the distichous nature of 'Sabrina' and the more succulent, more or less rounded, cross section of the leaf. The leaves of 'Sabrina' are darker green with many more or less concolorous tubercles. Tubercles were present in both the parents. Fig. 5 shows a typical plant.



Fig. 5. *xGasterhaworthia* 'Sabrina'



**xGasteraloe 'Lucia'.**

The parents are *Gasteria glomerata* E.J. v. Jaarsveld x *Aloe parvula* Berger. x*Gasteraloe* 'Lucia' has the longer leaves in rosette formation of *A. parvula*, but as in x*Gasterhaworthia* 'Sabrina' the leaves are highly succulent indicating the influence of *G. glomerata*. The leaves are a medium green with prominent, relatively large tubercles.



Fig. 6 (right)  
x*Gasteraloe* 'Lucia'



For the availability of plants please see  
<http://www.audissou.com>  
and page 16 of this issue.

***Aloe* 'Tiny Gem'**

The parents are *Aloe descoingsii* Reynolds x *Aloe sladeniana* Pole Evans. This Madagascan-Namibian hybrid combines the dwarf, spreading to recurved leaved rosette of the Madagascan *A. descoingsii* with the small, more upright leaved rosette of *A. sladeniana* from Namibia. The overall form of *A. sladeniana* is preserved in the hybrid, but the leaves are less chunky with a more graceful tapering point, presumably inherited from *A. descoingsii*. Both parents and the offspring exhibit whitish flecks and tubercles.

Fig. 7 (Left) *Aloe* 'Tiny Gem'

**Comments on *Haworthia correcta***

Ingo Breuer  
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Essie Esterhuizen concludes his article on *Haworthia correcta*, *Alsterworthia International* 1 (3)6-7 & 10, by upholding this name for the plants from North of George and South of Oudtshoorn. I agree with Essie that these plants are different from *Haworthia bayeri*, but I also agree with the rejection of the name *H. correcta* (according to Hammer), because it is a doubtful name. (Scott used *H. correcta* also for the Uniondale plants and this may cause confusion among collectors!). Therefore, the description of *H. bayeri* by Hammer & Venter was a good solution. I think the plants from South of Oudtshoorn are a variant

of *H. bayeri* and that it is better to give them a new name *Haworthia bayeri* var. *scabrifolia* nomen nudum. This variety has only a few leaves with smaller end areas and in many cases no markings, but a very scabrid surface, which gives it its name. The type has a more robust peduncle; the plants are nearly double the size of the variety and with many more leaves. The leaves have more rounded tips, not so pointed, and have very well-marked translucent end areas with different patterns in contrast to the variety. The surfaces are more often smooth rather than rough.

# A find of two aloes

Daphne and Albert Pritchard  
Co-editors, Euphorbiaceae Study Group Bulletin.  
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During our visits to South Africa we stay at the same small town of Graaff Reinet. We have visited this area on some twelve occasions, but continue to be surprised at the number of succulent species of various families that we still find. The find of two aloes whilst searching for *Euphorbia clavarioides* var. *truncata* around the Nieu Bethesda and Richmond area, was a little more by design than accident. We visited South Africa from the mid

"common" *Aloe aristata*. They assured us that it was from a local habitat, and gave us the name of the farm and farmer. The farm was to be found on the main Cradock road. Before returning to Graaff Reinet, we decided to investigate the farm, our intention being to ask the farmer for permission to look for the plant. As usual, we did not find the farm or even a road to any farm that might have been the site. This is quite common in South Africa, as farms are not always easy to find even when you have the name and area. On our return to Graaff Reinet we visited the local library and to our delight found that they had a copy of Reynolds' Aloes. The librarian kindly copied the relevant pages on *A. aristata* and we returned to our hotel to study them. We found that the western limit of distribution for this species appears to be Richmond and Bethesda Road (North of Graaff Reinet), the southern most limit known being Winterberg, south of Tarkastad.

Armed with this information we planned a trip out towards Richmond on a gravel road, which also led towards Nieu Bethesda, an area that interested us, as it is a location of *Euphorbia clavarioides*. We hoped to find both along the way. The plan was to find a farm and if possible the farmer, and ask permission to look for one or both on his land. We drove for a considerable distance until we came to a fork in the road where we had to choose between turning right to Nieu Bethesda or left to Richmond. We chose the latter. A few kilometres along the road was the entrance to a farm and, joy of joys, a farm house was in sight. We turned into the drive, our intention being to talk to the farmer if he was at home. A few metres down the drive Daphne exclaimed, "there it is!" I stopped the car and looked to where she was pointing and so it was, just by a fence, a beautiful four headed *Aloe aristata*. We could not believe our good fortune. We clambered hastily out of the car with cameras and video ready to record our find. As we did so the farmer arrived astride his motor bike and enquired what were we doing on his land. We explained that we were looking for an *Aloe* which grew in this area and that we had found it, and pointed it out to him. He was quite aware of the plant and willingly gave his consent for us to carry on and afterwards to join him at his house for tea. During tea we discussed the plant with him. He said there were many on the farm and also other succulents, which he offered to show us. We then climbed into his Chevrolet four wheel drive wagon and had a tour of part of this farm where we saw growing a very nice *Stapelia* and at least two species of mesembs. He offered to show us more should we return to the area.



Fig. 8. *Aloe aristata*.

November to early December 1999 and, during the early part of our visit on one of our plant hunting trips, we called at a motel for refreshment, a place we had visited before and had a passing acquaintance with the owners. They are interested in plants and took us to see a plant in their rockery. Imagine our surprise to be shown the

The *Aloe aristata* plants growing in this location do not resemble any plant I have seen in cultivation. Most were multi-headed, with incurved leaves, a beautiful blue/green colour with numerous white spots covering them. The majority of the plants we saw were in full flower,



being very deep red where in full sun and slightly paler if in shade. If only the species could be grown in cultivation like these habitat plants then they would be prized and cherished instead of being classed as common and easy. Perhaps we should forget the labels of "choice" and "difficult" as I would suggest that the cultivation of that *Aloe* is DIFFICULT and it could therefore be CHOICE should we attempt to grow the species as we saw them in habitat.

***Aloe striatula*.**

A day or so later we had a telephone call from the owner of the motel that we had visited earlier. He invited us to lunch and also to take a trip with him to see another *Aloe* in his locality. We were very pleased to accept his invitation. We drove out to the motel and after a very good lunch we climbed into our friends 'baaki' [Pick Up Truck] for a long and difficult drive across very rough terrain, climbing to a reasonable height along single track dirt roads. The road eventually petered out and we made the rest of the journey on foot over rocky ground with large grassy areas, finally



Fig. 9. Four headed, prominently marked, *Aloe aristata*

Reynolds again, established that this was *Aloe striatula* growing as described to the west of Graaff Reinet in the Karoo and from there to Queenstown and Lady Grey in the east and north east of the Eastern Cape Province. It is also found in the mountains of Southern Lesotho.

We have since been surprised to find plants of this species being sold in U.K. Garden Centres as a "Summer Bedding Plant" along with various mesembs., echeverias and aeoniums, all of which seem to be well grown. Is this a sign of "Global Warming"? We think not. Many or most of these plants will perish at the onset of our autumn and winter if left outdoors.

Photographs by the author.



Fig. 10. *Aloe striatula*

coming to an area with lots of rocky outcrops. Here we found the *Aloe*. It is not one collectors might want in their greenhouses! It was a large sprawling, clambering plant producing rather untidy shrubs some two metres high and several metres across. The stems are more or less 20 mm in diameter and carry leaves which are bright, shiny and dark with prominent stripes on the leaf sheaf. (These stripes giving the plant its Latin epithet *striatula*.) The plants had a lot of dead or damaged leaves, which could be the result of low temperatures or could be the normal growth pattern. The plants we saw were not in flower (We later found that the species flowers from November to January with orange or yellow flowers) We spent some time photographing the plants and examining a number of them before returning to the motel. Another visit to the library, to consult

**Friends of Kew - a U.S.A. contribution.**

Professor Peter Crane, Director of Kew, formerly director of Chicago's Field Museum, has helped to establish a Midwest Chapter of American Friends of RBG, Kew to increase awareness of the conservation work of Kew, including the Millennium Seed Bank. (See *Conserving Genetic Diversity* Alsterworthia International 1(3)11-12)

Formed in May 2001, 50 members raised more than \$40,000 by the autumn of 2001.

# The pleasure of propagation by leaf-cutting

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Fig. 11. Plantlets (1½ years old) emerging from "half" leaves of *Haworthia retusa* x *H. mirabilis* v. *badia*.

Searching for choice plants is a common practice. Unfortunately, such plants are normally not readily available. Slowness of growth is one of the main reasons for the limited supply, as is reluctance to offset. Seed raising is an alternative way to produce plants in greater quantities. However, the reproduction of the desirable characters we require is not guaranteed. Each individual from seeds may be different in some degree. The only way to ensure the reproduction of desirable characters is by vegetative propagation. All derived plants should usually be homogeneous and identical to their parents. This is exactly what we want if we want to preserve some rare, choice cultivars. Leaf-cutting is probably the easiest way to propagate haworthias with larger leaves. If one has not already tried this, it is worth the effort.

Many people may think it necessary to have some stem tissue attached to the leaf in order to be successful and some consider at least a whole leaf to be essential. From experiences, I have found both to be unnecessary. Four years ago, I received a box of plants from Japan. Amongst them was an extremely big chunky solitary *retusa*-type *Haworthia* with large windows. It was a hybrid between *H. retusa* and *H. mirabilis* var. *badia*. When grown in sufficient light, it turns reddish brown in colour. Unfortunately, the plant was very seriously affected by rot. No complete leaf could be rescued. I had to cut leaves down to round about half their lengths. Only 6 partial leaves were saved. After drying for 2 weeks, I potted them up in a shallow bowl filled with 4 mm grit. No heating was applied, but they were kept indoors on a windowsill. I misted the surface occasionally to encourage root growth but ensured that it was not wet enough for the growth of algae and fungi. There was no sign of growth for nearly a year nor any rot. The leaves remained turgid and green. Then they began to swell. Several months later, some plantlets began to emerge from the base of the leaves. More water was then given to encourage growth. Each leaf finally gave 3 to 5 plantlets with a total of about 26 from 6 leaves! Figure. 11.

From experiences, it is apparent that the following are essential for successful propagation from leaves:

- Healthy and turgid leaves. Avoid choosing the outermost rings of leaves, which are not at their prime, *if possible*
- Compost free of harmful fungi/bacteria. Use fresh sterilised media such as perlite, vermiculite, good quality cat litter or any sterilised compost. The potting medium has to be treated with fungicide occasionally.
- Compost neither too wet nor too dry. It should be moist enough to encourage root-growth but not wet enough for the growth of algae/fungi. After establishment of roots, the compost should be kept moist.
- Avoid strong sunlight. However filtered light is needed for the leaves to synthesise food.

Leaf-cutting is a good way of propagating plants, which are reluctant to offset and have chunkier leaves. One may not want to sacrifice the leaves of a highly prized plant, but sometimes it is the only way to produce spare plants. If none are produced, you may lose a particularly nice clone if the plant dies.

I have tried the following haworthias with success: *truncata*, *truncata* v. *maughanii*, *retusa* Fig. 12, *mirabilis* v. *badia*, *emelyae* v. *comptoniana*, *pygmaea*, Japanese *retusa*-type cultivars, *retusa*-type hybrids, 'Keganii', *emelyae* v. *major* Fig. 13 and *bayeri*.

I found that it is particularly easy to root leaves of Japanese cultivars and hybrids. The number of offsets from a single leaf is often up to eight! Another type worth trying to root is variegated leaves, to see whether variegation appears in the plantlets. For one of my variegated *Adromischus*, all offsets from leaves are



Fig. 12. Clumps of new growth from a single leaf of an *Haworthia retusa* cultivar ex Japan

variegated!

Photographs by the author.



For some time now it has been apparent that genera of the Asphodelaceae subfamily Alooiidae (*Aloe*, *Astroloba*, *Chamaealoe*, *Gasteria*, *Haworthia*, *Lomatophyllum* and *Poellnitzia*) have increased and still are increasing in popularity. (With varying degrees of acceptance by botanical authorities, *Lomatophyllum* and *Chamaealoe* have been included in *Aloe* and *Poellnitzia* and *Astroloba* in *Haworthia*.) There are many reasons for this trend. The fact that a number of authorities have worked on the genera and published books has been important. For haworthias, Scott has published one book, Bayer three and Breuer four, for gasterias, Jaarsveld has published one, for aloes Van Wyk & Smith and Glen & Hardy one each and now we have the *Monocotyledons* volume of the Illustrated Handbook of Succulent Plants. The formation of new specialist societies in Japan and the UK has also been important as they have provided additional avenues for the dissemination information. At the same time, there has been an increase in the amount of information published in the journals of general societies with some occasionally devoting one issue exclusively to these genera. The latest journal to do this is Avonia, the journal of the German Other Succulent Society.

The July 2001 issue (19:2) is devoted to aloes and haworthias. Hans-Jürgen Thorwarth writes about the *Dracoaloe*, *A. ramosissima*, *A. dichotoma* and *A. pillansii*, which he has studied in habitat. The article covers field observations, occurrence, climatic conditions and information on history, and cultivation.

Wolfgang Ewest records details about *A. macrocarpa*, *A. elegans*, *A. trichosantha* and an *Aloe* so far not identified, which he encountered in a journey in northern

and central Ethiopia.

Harry Mays describes the physiological background to variegation and presents some variegated haworthias.

In the first of a series of articles, Ingo Breuer starts with the cultivation and propagation of *H. decipiens*.

Dr Volker Buddensiek reviews the first issue of *Alsterworthia International*.

Ram Gandhi reviews 15 years' experience with haworthias in cultivation in India. There the mostly dry and hot conditions present special problems for cultivation not encountered in Europe. Appropriate cultivation techniques have been found by experimentation.

Dr Volker Buddensiek introduces the work of the International Succulent Introductions and four aloes, *A. wildii*, *A. fleurentinorum*, *A. conifera* and *A. diolii* and four haworthias, *H. mirabilis* ssp. *mundula* 'Batwings', *H. emelyae*, *H. magnifica* v. *major* and *H. xiphiophylla* distributed by the ISI in the period 1997-2001.

Naturally the articles are in German but with brief English summaries. They are illustrated in colour. Anyone who has an interest in aloes and haworthias and is able to understand German should find the articles of value. Contact person: Dr Volker Buddensiek, Kampstr. 23, 31655 Stadthagen, Germany.

### In vitro propagation of *Aloe haemanthifolia*

Fig. 14.

Recalcitrant shoots of *Aloe haemanthifolia* on rooting medium. Few roots were formed. One small root at bottom left.

Articles page 10 & Vol. 1(3)10

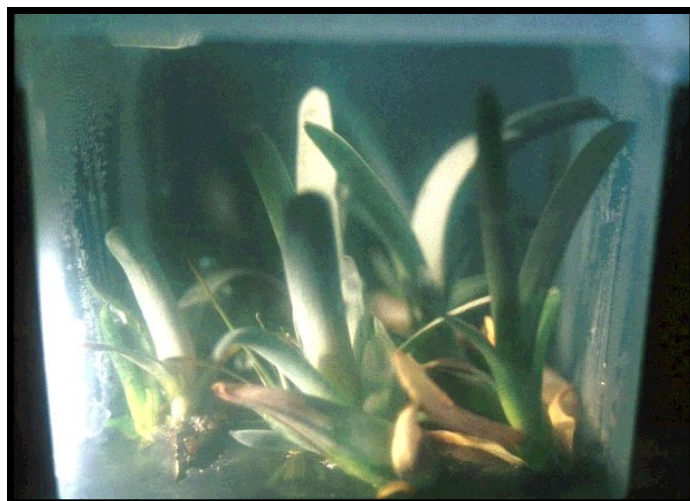


Fig. 13. Offsets from leaf of *Haworthia emelyae* v. *major* cultivar ex Japan

# Vegetative and in vitro propagation of aloes

Robert Wellens

STC (Succulent Tissue Culture), Sint Felixstraat 13, 4411 DB Rilland, The Netherlands

Towards the end of 2001, claims were made in e-mail discussion that aloes could be propagated from leaf cuttings. One claim turned out to be an error resulting from a misunderstanding in an exchange of views between two people of different nationalities. In another, the correspondent could only remember that he had successfully propagated aloes from leaf cuttings in the past, but he had neither plants nor details available. The present state of affairs is that there are no recorded examples of successful propagation of aloes from leaf cuttings. It must therefore be assumed that aloes cannot be propagated from leaf cuttings until proof to the contrary is produced. It cannot be assumed that, because gasterias and haworthias can be readily propagated from leaf cuttings, other related genera such as *Aloe* can also be successfully propagated from them.

A discussion about propagating from leaves gives rise to a consideration of tissue culture. Many researchers in South Africa, U.K. (Kew) etc have successfully propagated aloes by tissue culture. At Succulent Tissue Culture, thousands of aloes are propagated each year by tissue culture; most aloes are reproducible, some such as *A. pillansii* are difficult. I am not sure whether commercial scientists are willing to share their results, but educational researchers, who publish their results, are willing. I have found that different aloes need different approaches in vitro. Some are relatively easy, some are very difficult. *Aloe polyphyletic* is one which is now abundant because of successful tissue culture. I am sure many more will become abundantly available as a result of tissue culture. For a discussion about the tissue culture of the difficult *Aloe haemanthifolia*, please see *Alsterworthia International* 1(3)10. Figure 14 page 9

shows shoots of *A. haemanthifolia* on rooting medium. As indicated in the aforementioned article, no effective method has yet been developed to ensure good root formation on shoots of this species.

On present evidence, aloes cannot be produced by any form of in vitro culture of leaf tissue, but perhaps in the future they might be. They are reproduced in vitro by activating existing, dormant axils deep inside the plant near the growing point (meristem). Also, the so-called *de novo* side shoots, which are more or less "normal" shoots, can be induced in vitro for some aloes, but not all.

A similar situation is found in agaves, which are of course unrelated to aloes, but some publications talk about somatic embryogenesis from leaf tissue (the induction of embryos from plant tissue compared with zygotic embryos resulting from the fertilisation of embryos). We have tried it out and also succeeded in the formation of embryogenesis (embryo-like) tissue, but no subsequent differentiation into plants took place. In the long run I believe it might be possible to reproduce agaves from leaf tissue alone, but until then we stick to our successfully developed activation of dormant axils which give multiplication factors of 1:10 to 1:20 in 8 weeks.

Photograph page 9 by Robert Wellens

Further pictures of aloes and agaves in vitro can be seen on STC web page at [www.succulent-tissue-culture.com](http://www.succulent-tissue-culture.com)

## International Succulent Introductions for 2002

The ISI plant list for 2002 contains 41 taxa plus over 50 *Schick Echinopsis* hybrids. There are four aloes, two *Iomatophyllums* and two haworthias.

A copy of the 2002 ISI plant list and order form for the EU may be down loaded from < <http://www.cactus-mall/isi/html> > or obtained free of charge from Harry Mays by e-mail. A printed copy may be obtained by sending him an SAE

(UK) or an addressed envelope with one International Reply Coupon (other EU countries). For addresses please see page 2. From March-April the list with ordering instructions for non-EU countries and colour photographs should be available at [www.huntington.org](http://www.huntington.org)

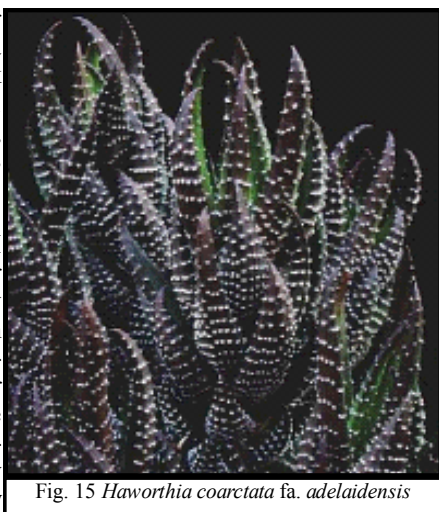


Fig. 15 *Haworthia coarctata* fa. *adelaidensis*



Fig. 16 *Haworthia retusa* fa. *geraldii*

*Haworthia coarctata* ssp. *adelaidensis* (Poelln.) M.B. Bayer, ISI 2002-25, Fig. 15, are rooted cuttings of a plant collected on Vaalkrans farm, 2 km from Grahamstown. The leaves are studded with white tubercles. Ground colour is rich green in shade, ruddy brown in bright light to full sun.

*Haworthia retusa* fa. *geraldii* (C.L. Scott) Pilbeam [(G.G. Smith) Pilbeam in *Haworthia &*

*Astroloba*, a collectors guide is an error] are rooted cuttings from a collected plant. The windowed leaf tips are distinctly lineate. Fig. 16.

Please see page 14 for *Aloes*



# Haworthia marginata (Lam.) Stearn – A prominent but threatened species.

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## Introduction

I can remember that *Haworthia marginata* was the first *Haworthia* I collected. I collected it on a hill where my father, who did earth moving work, was working. The only details I can remember are that there were plenty of plants, some of which had white spots. They were smaller and had a more greyish colour than the plants west of Heidelberg. As a youngster, I found them very attractive and collected some for our rockery. For almost 15 years, I have tried to remember where the exact locality was, but without success. I recall only that it was somewhere south west of Heidelberg.

## History

Scott recorded that "It is not known who first discovered *H marginata*, but it is not surprising that it was known by 1700 as it was common along the route which early explorers followed".

Prince Salm-Dyck for a long time did not have it and even today it seems not to be that well represented in collections.

*Haworthia marginata* was long known as *H. albicans* (Haw) Haw., but that name was made a synonym of *H. marginata* in 1938 by W.T. Stearn. *Marginata*, published by Lamarck in 1783 as an *Aloe*, has priority over *albicans*, published by Haworth in 1804, also as an *Aloe*.

Haworth actually described four species now regarded as *H. marginata*, namely *H. albicans*, *H. laevis*, *H. ramifera* and *H. virescens*. All four are smooth and very similar to one another, but could easily be distinguished according to Haworth. In *H. albicans* the stem is unbranched and the margins cartilaginous, thick. In *H. laevis* the stem is unbranched, the leaves have hardly any cartilage and are long acuminate. In *H. ramifera* the stem is ramose and often the leaves are moderately tuberculate, tubercles white. In *H. virescens* the leaves are darker green as in *H. albicans* with few white tubercles beneath along the line of the keel.

## The species under discussion

Although *Haworthia marginata* was known by 1700, not much has been written about it, maybe three to five pages in total over a period of three centuries. Nevertheless, the following remarks by three *Haworthia* authorities are of interest:

### The beauty:

**Bayer** "This is the grandest and most elegant of all the species"

### The features:

**Pilbeam** "The leaves are stiff and *Agave*-like with a horny tip. The margins of the leaves vary considerably from a continuous, barely discernible narrow edging to prominent, thick ridges bleeding into individual tubercles near to the margins on the flat surfaces of the leaves".

**Bayer** "The colour in the field is a very attractive,

glaucous silvery 'avocado' green".

### The habitat:

**Scott** "It is a component of Renosterbos veldt, and grows on slight inclines, usually next to or under low scrub"

### The distribution:

Bayer "*H marginata* has been recorded from north of Bredasdorp, west of Napier, south of Swellendam, Heidelberg, Riversdale and also north and south of Ashton. It thus occurs principally in the Coastal Renosterbos veld-type except at Ashton where it is found in Karoid Broken veld".

## Discussion

When I started my *Haworthia* collection many years after my first find, *H. marginata* was one of the first haworthias in my collection, because it grows near Heidelberg, my then home town. Here *H. marginata* prefers growing in the open as single plants, but now and then plants with two or three heads are found. It grows very large and the yellow/goldish colour of plants growing in the open in sun contributes further to the aesthetic picture of this species in the wild.

Although one often hears about *H. marginata*/*H. minima* hybrids, this is the only place where I have seen real field hybrids. Figure 17 shows the hybrid found there, growing between a population of *H. minima* and a population of *H. marginata*. One can expect this because both species flower in this area during February (autumn in the Southern hemisphere). It is normal to find *H. marginata* with spots, which may give the false impression that it is a hybrid. Dekenah always referred to the spots or absence thereof when recording his localities, for example:

Growing south - west of Riversdale - some spotted, others plain.

Plants growing north of Riversdale on the Vet River road



Fig. 17. *Haworthia marginata* x *Haworthia minima*  
Just west of Heidelberg

(Continued on page 12)

(Continued from page 11)

only plain, not a single spotted one in the locality. One cannot discuss this issue without referring to *H. uitewaaliana*. This is also a glabrous plant, which is undoubtedly *H. minima*. It was described from 48 km east of Riversdale, an area where *H. marginata* is not known to grow. If it were 48 km west, it would have come from a locality of *H. minima*, where glabrous plants are also found. The plants here are much more robust as are the plants from just north of Heidelberg, to which I referred in my article on *Haworthia minima*, published in *Haworthiad*.

Although Dekenah recorded *H. marginata* from various other localities around Heidelberg, like Die Plotte and the farm Morningstar, investigations in those areas shows that these localities were destroyed to make way for wheat lands. That was also the case at Diepkloof where the farmer told to me that he could remember how they plough the plants into the ground when they cleared it for cultivation. The same happened to *H. marginata* around Riversdale, as recorded by Dekenah, although a few plants are still found South of the town. The plants are similar to those found near Heidelberg, but maybe a bit smaller. It is regrettable to say that even here the area is suitable for cultivation, and it may only be a matter of time for these plants to become extinct as well. The other problem with this species is that it grows above the ground and it is easily trampled to pieces by cattle.

The plants from Koppies, south west of Heidelberg have the same size and colour as the plants near Heidelberg itself, but it is noteworthy that they have more, and slightly more slender, leaves. Fig. 18. Only a few plants are present at this locality. Cultivation of plants from field collected seeds my secure the future existence of plants from this locality. It is furthermore also interesting that the plants are growing under grass tufts, compared with the other localities where they grow in more gravelly ground. West of the Breede River the plants tend to be darker green. At Adoonskop, north of Bredasdorp, the plants are small and look like miniature *H. marginata*. In this location only a few plants were observe. Maybe this too is a population that needs to be introduced more widely in cultivation in order to help to save it from extinction. David Cumming also collected a miniature form north of Bredasdorp.

The most attractive form may be the plant from Drew with its long, slender, dark-green leaves, a growth form (although not dark green) that has also been reported from south of Swellendam and beautifully illustrated by Bayer in *Haworthia Revisited*. One may ask whether this form with the longer, more slender leaves does not justify variety status. It is so different from the normal form that collectors refer to it as the Drew form. North of Ashton, *H. maxima* and *H. marginata* hybridise and

produces a wide spectrum of plants. The two species are easy separated because *H. marginata* has a glabrous leaf surface. *H. marginata's* inflorescence is similar to that of *H. maxima*, except that the perianth lobes are white suffused with pink.

Like *H. minima*, this species is more often than not found in the vicinity of the retuse haworthias, namely *H. heidelbergensis*, *H. retusa* and *H. asperula*.

#### Conservation (or lack of)

Wherever *H. marginata* is found, its habitat is in danger. *H. marginata*, with its already reduced numbers in the wild, should be regarded as one of the most endangered and threatened *Haworthia* species. I cannot differ from Bayer when he wrote "However, it has been both severely over-collected and destroyed by agricultural development. The result is that it is now very seldom seen in the field and must be regarded as a threatened species." It was, therefore, good news to see trays of *H. marginata* propagated by seed in Gerhard Marx' article on conservation published in *Aloe* 2001. I am of the opinion that the number of plants in the photograph outnumbered the total number of *H. marginata* left in the whole of the Cape.

#### Bibliography

Scott C.L. 1985. The Genus *Haworthia*: A taxonomic revision. Aloe Books, Johannesburg

Pilbeam, J. 1983. *Haworthia* and *Astroloba*, a Collector's Guide

Bayer M.B. 1982. The new *Haworthia* Handbook, Cape Town

Bayer M.B. 1999. *Haworthia Revisited*, Umदाus Press

Breuer, I. 1998. The World of *Haworthias*, Volume 1, Niederzier and Homburg/Saar

Breuer, I. 2000. *Haworthia* photographs used to typify taxa described by Dr. von Poellnitz, Niederzier and Homburg/Saar

Breuer, I. 2000. The World of *Haworthias*: Volume 2.

Photographs by the author.



Fig. 18. *Haworthia marginata*. Koppies.



# A comment on Bayer's latest taxonomic contribution.

by Ingo Breuer

## Introduction

In Aloe 38(1&2) 2001 Bayer published a paper in which he re-established the name *H. rossouwii* for the well known *H. serrata* and combined *H. mirabilis* var. *calcareea* and *H. variegata* var. *petrophila* as varieties of *H. rossouwii*.

In the past I have not commented on papers by Bayer, but because of his new article I have to ask, what is his understanding of botany? I will give you some facts to think about. Maybe you will be able to form your own opinions.

## Comments

I will not analyse the whole paper, but will concentrate on the

So that you may have a better understanding, I will show the pictures of these four plants together. Figs. 19-22.

You might have asked yourself why Bayer did not publish the original photo of the lectotype of *H. rossouwii* from Berlin together with the many others he presented. The reason could not be that it was not available, because I would have given him a copy if he had asked. When you compare the pictures, you will see that *H. rossouwii* is quite a different plant from *H. serrata*.



Fig. 19. *Haworthia rossouwii* Lectotype. Poellnitz 1938

The type locality of *H. rossouwii* given by Poellnitz is Napier, which is far away from that of *H. serrata*. The locality of *H. serrata*



Fig. 20. *Haworthia variegata* v. *petrophila*



Fig. 21. *Haworthia serrata* IB 1999

most important parts. What leads him to unite three completely different taxa into one taxon and that under an old, rather doubtful name?

You can read the description of *H. rossouwii* in Breuer (2000) page 707 and also that of *H. mirabilis* var. *calcareea* on page 588, *H. serrata* on page 733 and for *H. variegata* var. *petrophila* look on page 810 or look at Bayer's *Haworthia Revisited* (1999).

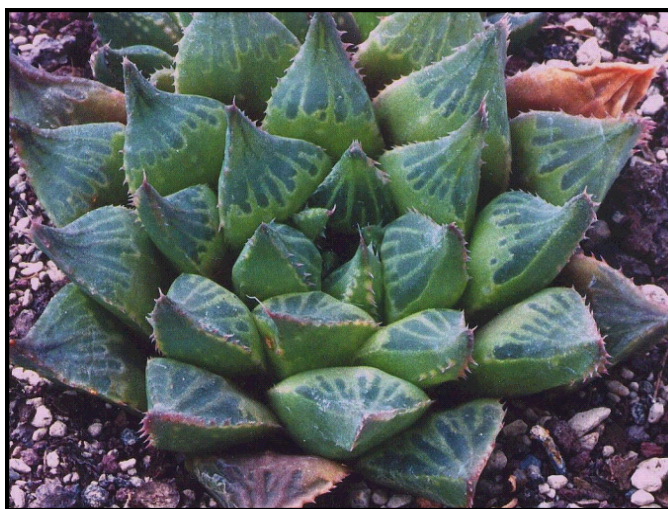


Fig. 22. *Haworthia mirabilis* v. *calcareea*

is at the eastern boarder of Bayer's new species arrangement, *H. calcareea* is located SW of *H. serrata* and *H. petrophila* further SW in Bredasdorp area. But more important than the distribution of the elements of the 'new' *rossouwii* and recognition that the shape of the leaf surface and leaves, and the leaf surface are quite distinguishable in the three taxa, is a consideration of their floral characters. *H. serrata* has a very thick (up to 5 mm Ø) peduncle and a

(Continued on page 14)



INTERNATIONAL SUCCULENT INTRODUCTIONS 2002 - ALOES



Fig. 23  
*Aloe imalotensis*

*Aloe erythrophylla* J. Bossar, ISI 02-10, have been grown from seed produced by the controlled pollination of plants collected south of Col d'Iremo, Madagascar. Erythro-phylla = red-leaves, the colour resulting from stress such as drought and cold. Fig. 25.

*Aloe imalotensis*, ISI 02-1, Reynolds have been grown from seed produced from plants grown from habitat seed collected in the Isalo Range west of Ranohira, Madagascar. Reynolds compared it with *A. striata* of S A. Fig. 23

All photographs by J.N. Trager.



Fig. 24  
*Aloe striata*

*Aloe krapohlina* Marloth, ISI 02-12 have also been grown from seed obtained by the controlled pollination of plants, this time from Grootvlei Pass, SA. Adult plants rarely exceed 6"/15cm.

*Aloe striata* Haw. , ISI 02-13, are second generation seedlings of plants from seed collected in the Oukloofberge, south of Prince Albert. Pure *striata* are almost solitary and the leaves are without teeth. The plants with leaves with teeth in cultivation under the name *Aloe striata* are hybrids. Fig. 24.

*Lomatophyllum prostratum* Perrier, ISI 02-32, originated in the Zoombitsy forest near

Sakaraha, Madagascar. The plants have dark reddish, contorted leaves reminiscent perhaps of an octopus.

*Lomatophyllum* sp., ISI 02-33 have been grown from seed from the controlled pollination of plants from a forest on quartzite at Analalava, Madagascar. They have white-spotted, flexible green leaves. Fig. 26.



Fig. 25  
*Aloe erythrophylla*

*Lomatophyllum* (= fringed leaf) has been included in *Aloe* as a Section, but in "Monocotyledons" the division of *Aloe* into sections has been abandoned ".the development of a new infrageneric classification....is a long way off."



Fig. 26  
*Lomatophyllum* sp.

(Continued from page 13)

many flowered raceme, where the flowers are positioned only a short distance apart (resembling *H. multifolia*). *H. calcarea* has an inflorescence which is more the "mirabilis-type" with a thinner peduncle, fewer flowers on the raceme with quite a large distance between them and a different shape of flower and flowering time. (Within vol. 3 of World of Haworthias all floral characters will be described in detail.) *H. petrophila* is also different from the other two, mainly by its shape of flowers with its yellowish centre (which resemble *H. meiringii* flowers) and a different flowering time. Bayer did not report these features, nor did he show any pictures of floral features. (Remark: with the presentation of the results of my investigation of the floral characters of haworthias, I shall also show pictures of the flowers from all taxa the investigation dealt with.)

**Resumé**

*H. rossouwii* is probably an element of the maraisii-complex as one can see from the lectotype picture and the description, as well as from its given locality. But it is insufficiently known, because Poellnitz description probably depends only on 1 or a very few selected plants, and no other records are reported for this taxon. The other records of *H. serrata* given by Bayer fit quite well

with the plants from the type locality of *H. serrata*, but I see no connection to the *H. rossouwii* from Napier. The name *H. serrata* should be upheld and *H. rossouwii* should be regarded as a doubtful name.

*H. serrata*, *H. calcarea* and *H. petrophila* are quite distinct and are distinguished by the shape of the plants, leaves, floral characters and flowering time and should be regarded as 3 single taxa. If one were to accept them as elements of one species, one would have to lump many others into one species too, but that makes no sense.

I could accept a 'lumper' raising all the species and varieties of a 'series' to one 'super species', but not the uniting of taxa of different groups into one. A 'series' in my understanding is a group of taxa with related floral characters.

References:

- Aloe 38(1&2) 2001
- Bayer, 1999: Haworthia revisited, Hatfield.
- Breuer, 2000: The world of Haworthias 2, Niederzier/Homburg.



## Book Review\* by Dr. Paul I. Forster

### Illustrated Handbook of Succulent Plants: Monocotyledons. Egli, U. (ed.)

32 colour plates comprising 227 individual photographs, 386 pp. Springer, Berlin-Heidelberg-New York. 2001. Hardcover DM 190.35, US \$ 99.00, £65.50. ISBN 3-540-41692-7.

For many years succulent plant hobbyists have had to rely on a variety of handbooks as all-encompassing compendia of information, especially those of Jacobsen (1960, 1977) for the succulents other than cacti and Backeberg (1958-1962, 1976) for the succulents in the family Cactaceae. The recent excellent publication on cacti by Anderson (2001) has largely filled the gap on Cactaceae (Forster 2001) and now we are promised a total of six volumes on the other succulents under the title of the *Illustrated Handbook of Succulent Plants*. This massive project has been largely coordinated by Urs Egli of Zürich (volumes on Crassulaceae, monocotyledons, dicotyledons), Heidrun Hartmann of Hamburg (two volumes on Aizoaceae (mesemb)) and Focke Albers and Ulrich Meve of Munster (volume on Asclepiadaceae). After a chequered history of different publishing houses, the final product is being produced by the prestigious scientific publisher Springer-Verlag (the English language editions).

The first of these volumes to appear is the one on monocotyledons. The book starts with a general introduction (that is appropriate for the whole series) and asks 'What is a succulent', although it does not answer this question. In this volume a wide range of plants are covered, but perhaps most notably the popular genera such as *Agave* (by J. Thiede), *Aloe* (by L.E. Newton), *Gasteria* (by E. van Jaarsveld), *Haworthia* (by M.B. Bayer & E. van Jaarsveld), *Sansevieria* (by L.E. Newton) and *Yucca* (by J. Thiede). A horde of other smaller genera and nothogenera (hybrids between two or more genera) are also covered, including a fair proportion of succulent bulbous plants. The treatments of each taxon are concise and alphabetic with the taxa arranged reflecting current trends in familial relationships. The families included in detail are Agavaceae (*Agave*, *Beschorneria*, *Furcraea*, *Hesperaloe*, *Hesperoyucca*, *Yucca*), Aloaceae (*Aloe*, *Astroloba*, *Chortolirion*, *Gasteria*, *Haworthia*, *Poellnitzia*), Amaryllidaceae (*Boophane*, *Brunsvigia*, *Cyrtanthus*, *Haemanthus*, *Rauhia*), Anthericaceae (*Chlorophytum*), Araceae (*Zamioculcas*), Asparagaceae (*Myrsiphyllum*), Asphodelaceae (*Bulbine*, *Trachyandra*), Commelinaceae (*Aneilema*, *Callisia*, *Cyanotis*, *Tradescantia*, *Tripogandra*), Dioscoreaceae (*Dioscorea*), Doryanthaceae (*Doryanthes*), Dracaenaceae (*Cordyline*, *Dracaena*, *Sansevieria*), Eriospermaceae (*Eriospermum*), Hyacinthaceae (*Albuca*, *Bowiea*, *Dipcadi*, *Drimia*, *Hyacinthus*, *Lachenalia*, *Ledebouria*, *Litanthus*, *Massonia*, *Ornithogalum*, *Rhadamanthus*, *Rhodocodon*, *Schizobasis*, *Urginea*, *Whiteheadia*) and Nolinaceae (*Beaucarnea*, *Calibanus*, *Dasylyrion*, *Nolina*), with passing mentions of Bromeliaceae, Orchidaceae and Xanthorrhoeaceae.

Each family is described in detail and there is a key to those genera comprising succulents. A concise description is provided for each species and any infraspecific taxa. Details on the place of publication for the taxon name, the type collection and general distribution are given, together with citation of some illustrations from the literature and a list of synonyms. Apart from naturally occurring taxa, only nothospecies are included, and unfortunately the vast range of named cultivars (i.e. those with 'fanciful' names) are completely excluded. There are no keys to species or infraspecific taxa (subspecies and varieties), nor has there been any serious attempt by many of the contributors to provide consistent, contrasting descriptions. It would be reasonably safe to state that, for most of the genera (especially the larger ones), it would be difficult to make any satisfactory species determinations using this book. My attempts to identify some *Astroloba* species (a small genus of

about seven species) were also not terribly successful from using the account therein, although admittedly the authors (N. Meyer & G. F. Smith) state that the genus is under revision.

With any work of this magnitude, there are bound to be errors and inconsistencies. The long gestation time in publication has also meant that it is not totally up-to-date in its coverage of recently published new taxa (e.g. *Gasteria pendulifolia* van Jaarsveld and *G. polita* van Jaarsveld not included), some recent synonymies by Glen & Hardy (2000) in *Aloe* not referenced (e.g. the reduction of *A. distans*, *A. comptonii* and *A. mitriformis* to synonymy of *A. perfoliata*) and the reduction of *Poellnitzia rubriflora* to a species of *Astroloba* by Manning & Smith (2000) not mentioned. Some treatment of taxa suggest nepotism (e.g. support for the idiosyncratic reduction of *Aloe erinacea* D.S. Hardy to a variety of *A. melanacantha* by G. D. Rowley). The treatment of *Haworthia* is also frustrating as most of the nomenclatural errors created in the work of Bayer (1999, cf. Forster 1999) are repeated, and although thankfully *H. maxima* is now used (for *H. pumila*), other incorrect names persist. Whilst all of the radical name changes in *Haworthia* proposed by Halda (1997) appear to be listed in synonymy, the same cannot be said for those of Hayashi (2001, not 2000 as given) with only a partial listing (eg. *H. bronkhorstii* Hayashi, *H. crausii* Hayashi, *H. opalina* Hayashi and *H. zenigata* Hayashi are not mentioned). Some distribution records seem to be in error (e.g. *Haworthia gracilis* var. *isabellae* from the Baviaanskloof, although most records are from the Steytlerville, Port Elizabeth and Humansdorp map sheets in the Eastern Cape of South Africa (cf. Bayer 1999)) and others are not comprehensive (e.g. *Aloe suffulta* is listed only for Mocambique and Kwa-Zulu Natal in South Africa, although it has been long recorded from Zimbabwe (West 1974)). One also wonders if some proposed nothogenera (e.g. x *Alolirion* G.D. Rowley or x *Poellneria* G.D. Rowley) ever existed beyond the hybridist's imagination and eagerness to create new names. At least one figure is incorrectly identified (the first figure is not *Agave attenuata*, but surely *A. bracteosa*). Overall the photographs are of good quality, although there could have been more of them to compliment a work of such significance, especially as it will be in competition with populist and much less expensive photographic books for those with limited budgets. The book concludes with a comprehensive listing of literature and a cross-referenced taxonomic index.

Overall this is an excellent introduction to the plant groups covered and as a rigorous compilation of both diagnostic and bibliographic information is without peers. The book is nicely bound and with a hard card cover to withstand repeated usage. At DM 190.35 (c. AUD \$170) it is expensive and may be out of reach for most hobbyists. It is essential for the committed collector of succulent plants and mandatory for libraries of plant societies, herbaria and botanic gardens.

\*This review was first published in the journal *Plant Systematics & Evolution* 229: 131-133 (2001) and is reproduced here with permission of the editor.

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The plant list contains over 140 Aloe, 2 xAlworthia, 5 Bulbine, 12 xGasteraloe, 5 xGasterhaworthia, 12 Gasteria and over 70 Haworthia. Some of the plants have habitat details and some are hybrids and cultivars.

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## S U C C U L E N T S , C A U D E X E S , B U L B S

A newly built greenhouse in Prague is now full of plants. The 2002 plant list contains, for example, Conophytum, Trichocaulon, Adromischus, Haemanthus, Brunsvigia, Euphorbia, Pachypodium, Raphionacme, Adenium, etc. *There are 19 Aloe, 5 Bulbine, 8 Gasteria and 92 Haworthia.*

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